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REMARKS

Entry of this amendment and reconsideration of this application, as amended, are respectfully requested.

The indication of allowable subject matter is gratefully acknowledged.

It is believed that the amendments to the claims overcome the rejection of claims under §112, second paragraph.

Claims 22-24, 27, 37-39 and 41 were rejected under 35 U.S.C. §103(a) over Erbkamm. Claims 25-26, 28-29, 30 and 40 were rejected under the same statute over Erbkamm and Schwindt. Applicants respectfully traverse each of these rejections.

Erbkamm discloses a system with a square box as encircling vacuum chamber, and Schwindt discloses series of three cylindrical vacuum chambers either arranged in a vertical or in a horizontal direction.

With reference to the attached modified FIG. 1 and to the English translation of Erbkamm, Fig. 1 shows the vacuum chamber is a "square box", defined by planar enclosing walls. Member 14, translated as "process roller mill" from "Prozesswalzenstuhl" in the German document, has been emphasized by thick black lines plus hatching. Member 14 is a rigid framework, carrying two large and heavy cooling rolls 15 and 16 (coating cylinders) plus a number of guide devices 13, also rollers. The vertical thick arrows demonstrate the influence of the atmospheric pressure versus high vacuum, which is 1 kg per square cm or 14,22 pounds per square inch, a tremendous pressure for the square box. According to paragraphs [0024] and [0025], this "process roller mill 14" is located on a fastening point 19 (left) and on a fastening point 20 (right). Both fastening points 19 and 20 are attached to the vertical walls 9 or 10, which cannot transfer any forces to a top, cover, roof or ceiling, because these walls are interrupted

above the fastening points 19 and 20 by belt valves 7 and 8 [0023], which are slits running vertically to the plane of drawing. Accordingly, the middle of the "process roller mill 14" is freely suspended and is not attached by any means to the top, cover, roof or ceiling of the vacuum chamber. There is a clear gap between this top and the "process roller mill 14", and, therefore, the Examiner is not correct in stating at item 10 of the office action that the guide roll(s) and the coating cylinder which face the closing plate "are fastened to the cover with bearings".

Schwindt discloses two embodiments as shown in figures 1 and 2, none of them having a flat cover 10 of the shield 20, (in German a "Zarge", which is a frame or cover like that of windows and doors and surrounding the whole arrangement of (an) evacuable chamber(s)), and in neither of those two cases is a coating cylinder present, nor are there any rotating means fastened to the cover (or ceiling) 10.

Schwindt discloses 3 cylindrical chambers. In Figure 1, the middle chamber has a guide cylinder 32, which is not a coating cylinder but just a means to assist the radial partition walls 44. In figure 1 the lowermost chamber is the coating chamber, and the web runs freely suspended by the idler rolls 68 through this chamber in a triangle. This is necessary because the web should be coated in one run on both sides, which would be prevented by a coating drum or cooling cylinder like in the invention.

Although using a cylinder as a vacuum chamber provides substantial rigidity against the atmospheric pressure, it is not optimal for space considerations for the internal means or for the surrounding areas.

Clearly Erbkamm and Schwindt belong to two absolutely contrasting design principles.

It is reiterated that, contrary to what the Examiner alleges, the ends of the guide rollers 13 and of the coating cylinders 15 and 16 are not fastened to the cover; rather, they are fastened to an independent frame structure 14, which rests on protruding members 19 and 20, attached to the walls 9 and 10. As already mentioned, walls 9 and 10 are interrupted towards the ceiling by belt valves 7 and 8, and these must have a length which correspond to the width of the substrate. One of skill in the art would know that this width is close to the distance between the front and rear walls of the vacuum chamber. These walls run parallel to the sheet of drawing of Fig. 1.

Frame structure 14 has to be a very solid, heavy and expensive means like a real "bridge", and requires the additional height of the vacuum chamber. This is in clear contrast to the object of the invention as set forth under paragraph [0008]. The Examiner is referred to Figures 1, 4 and 5 to see how close the coating roller is mounted below the "ceiling".

Claims 23 and 24 claim two different embodiments for mounting guide rollers and coating rollers. Neither of these embodiments are disclosed by Erbkamm. All bearings are mounted in the four vertical "legs" of the frame structure 14, which is independent from all walls, the ceiling and the bottom, with the exception of the walls 9 and 10.

With respect to claim 27, Erbkamm does not disclose four chamber sections (closely) surrounding the circumference of the coating roller. All walls are far away from the coating rollers, and the coating rollers necessarily work in the same atmosphere. The presently claimed invention allows different atmospheres (pressures, temperatures and gas compositions) in the surrounding chambers, as is clearly disclosed in the present application.

With respect to claim 37, Erbkamm clearly shows the contrast to the subject matter of this claim. To reiterate: Erbkamm and Schwindt relate to two absolutely contrasting design principles.

Erbkamm does not disclose the invention as claimed as described above. Erbkamm shows dividing walls between three different chambers, but not dividing walls around a guide cylinder 32, which is not a coating cylinder. Schwind does show dividing walls around a guide cylinder 32, which is not a coating cylinder. Furthermore, Schwindt does not disclose any coating cylinder. Accordingly, even a combined teaching of Erbkamm and Schwind does not render the presently claimed invention obvious.

It is submitted that even a single prior art document showing both the inventions Erbkamm and Schwindt would not render the subject of the presently claimed invention obvious because one basic idea is missing: The use of the normally rigid or stiff planar top or roof of the vacuum chamber as supporting means for the guide rolls and the coating cylinder, thereby rendering the space underneath the coating cylinder free of supporting elements.

Erbkamm reaches such a free space but with an essential difference: Erbkamm requires a very space consuming, heavy and expensive process roller mill 14 (a frame structure) and requires being positioned right below the top, ceiling or cover of the vacuum chamber.

It is not disclosed by Erbkamm or Schwindt that any roller, cylinder or the like is fastened to the flat ceiling or closing plate (not even having a numeral in Erbkamm).

In Erbkamm the spaces in the vacuum chamber underneath the coating cylinder(s) are free of supporting elements, however, Erbkamm discloses three different process roller mills 14 in the apparatus, namely:

1. one is (11) in chamber 2,
2. one is (14) in process chamber 1, and
3. one is (12) in chamber 3.

These supporting structures 11, 12 and, especially, 14, which rest and have to be adjusted upon interrupted walls 9 and 10 need lateral and circumferential space, are heavy and expensive.

It is an advantage of the invention that the flat cover or ceiling of the invention takes over this task. The cover or ceiling 10 is stiffened by the rear/back wall 18, by the frontal flange 21 and by the cross beams 11 and can completely take over the respective loads including the atmospheric pressure without any additional frames or supporting structures like that of Erbkamm.

According to the invention this cover withstands the outer atmospheric pressure and the weight of the internal design elements with a minimum of space consumption.

Clearly, one cannot combine Erbkamm and Schwindt. Erbkamm needs cooled coating cylinders 15 and 16, but Schwindt does not disclose any (cooled) coating cylinders and also not a flat cover or ceiling. Neither reference, as discussed above, attaches bearings for drums and rollers to a flat cover or ceiling. Finally, it is not correct that Schwindt provides any missing features of Erbkamm.

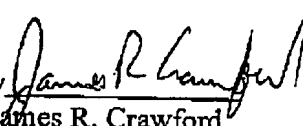
In view of the foregoing, all claims are believed to be allowable.

In view of the foregoing allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. NY-HANZ-206-US. A duplicate copy of this paper is enclosed.

Respectfully submitted

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